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## SEARCH REQUEST FORM

Requester's Full Name: Satya Gudiabande Examiner #: \_\_\_\_\_ Date: 7-15-09  
Art Unit: \_\_\_\_\_ Phone Number: 2- Serial Number: 10-518623  
Location (Bldg/Room#): \_\_\_\_\_ (Mailbox #): \_\_\_\_\_ Results Format Preferred (circle): PAPER DISK  
\*\*\*\*\*

To ensure an efficient and quality search, please attach a copy of the cover sheet, claims, and abstract or fill out the following:

Title of Invention: \_\_\_\_\_

Inventors (please provide full names): \_\_\_\_\_

Earliest Priority Date: \_\_\_\_\_

**Search Topic:**

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc., if known.

\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Hydrolysis of glycocyanine to yield glycine

## REGISTRY RECORD FOR GLYCOCYAMINE

=> fil reg; d ide

FILE 'REGISTRY' ENTERED AT 15:03:57 ON 15 JUL 2009

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<http://www.cas.org/support/stngen/stndoc/properties.html>

L1 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2009 ACS on STN

RN 352-97-6 REGISTRY

ED Entered STN: 16 Nov 1984

CN Glycine, N-(aminoiminomethyl)- (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Glycine, N-amidino- (8CI)

OTHER NAMES:

CN  $\alpha$ -Guanidinoacetic acid

CN  $\beta$ -Guanidinoacetic acid

CN 2-[[Amino(imino)methyl]amino]acetic acid

CN Acetic acid, [(aminoiminomethyl)amino]-

CN Betacyamine

CN Betasyamine

CN Glycocyamine

CN Guanidine, (carboxymethyl)-

CN Guanidineacetic acid

CN Guanidinoacetic acid

CN Guanidoacetic acid

CN Guanidylacetic acid

CN Guanyl glycine

CN N-Amidinoglycine

CN NSC 1901

CN NSC 227847

CN NSC 26360

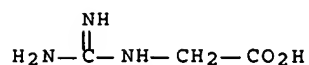
DR 13516-06-8

MF C3 H7 N3 O2

CI COM

LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN\*, BIOSIS, BIOTECHNO, CA, CAPLUS, CASREACT, CHEMCATS, CHEMINFORMRX, CHEMLIST, CSCHEM, DDFU, DRUGU, EMBASE, GMELIN\*, IFICDB, IFIPAT, IFIUDB, MEDLINE, MRCK\*, RTECS\*,

SPECINFO, TOXCENTER, USPAT2, USPATFULL, USPATOLD  
(\*File contains numerically searchable property data)  
Other Sources: EINECS\*\*  
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\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

933 REFERENCES IN FILE CA (1907 TO DATE)  
19 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
936 REFERENCES IN FILE CAPLUS (1907 TO DATE)

=> S 352-97-6/crn  
L2 32 352-97-6/CRN

## TEXT SEARCH

=> => fil capl; d que l19; fil biosis; d que l27  
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FILE COVERS 1907 - 15 Jul 2009 VOL 151 ISS 3  
 FILE LAST UPDATED: 14 Jul 2009 (20090714/ED)  
 REVISED CLASS FIELDS (/NCL) LAST RELOADED: Apr 2009  
 USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Apr 2009

Caplus now includes complete International Patent Classification (IPC) reclassification data for the second quarter of 2009.

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The ALL, BIB, MAX, and STD display formats in the CA/Caplus family of databases will soon be updated to include new citing references information. This enhancement may impact record import into database management software. For additional information, refer to NEWS 22.

'OBI' IS DEFAULT SEARCH FIELD FOR 'CAPLUS' FILE

L1	1	SEA FILE=REGISTRY SPE=ON	ABB=ON	GLYCOCYAMINE/CN
L2	32	SEA FILE=REGISTRY SPE=ON	ABB=ON	352-97-6/CRN
L3	936	SEA FILE=CAPLUS SPE=ON	ABB=ON	L1
L4	41	SEA FILE=CAPLUS SPE=ON	ABB=ON	L2
L5	967	SEA FILE=CAPLUS SPE=ON	ABB=ON	(L3 OR L4)
L14	292352	SEA FILE=CAPLUS SPE=ON	ABB=ON	HYDROLY?/OBI
L16	100	SEA FILE=CAPLUS SPE=ON	ABB=ON	L1/P OR L2/P
L17	18	SEA FILE=CAPLUS SPE=ON	ABB=ON	L5 AND L14 NOT L16
L18	35	SEA FILE=CAPLUS SPE=ON	ABB=ON	L5(L) (INHIBITION/OBI OR CYLINDROSPERMOPSIN/OBI OR ACYLATION/OBI OR DAVIDIGENIN/OBI OR CHLORINATION/OBI)
L19	12	SEA FILE=CAPLUS SPE=ON	ABB=ON	L17 NOT L18

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FILE COVERS 1926 TO DATE.  
CAS REGISTRY NUMBERS AND CHEMICAL NAMES (CNs) PRESENT  
FROM JANUARY 1926 TO DATE.

RECORDS LAST ADDED: 8 July 2009 (20090708/ED)

BIOSIS has been augmented with 1.8 million archival records from 1926 through 1968. These records have been re-indexed to match current BIOSIS indexing.

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L1          1 SEA FILE=REGISTRY SPE=ON ABB=ON GLYCOCYAMINE/CN
L20         200 SEA FILE=BIOSIS SPE=ON ABB=ON L1
L21         449 SEA FILE=BIOSIS SPE=ON ABB=ON BETA!YAMINE OR GLYCOCYAMINE OR
              GUANIDIN!ACETIC OR ((GUANIDIN# OR GUANIDYL)(W) ACETIC) OR
              GUANIDYLACETIC OR AMIDINOGLYCINE OR NSC(W)(1901 OR 227847 OR
              26360)
L23         177055 SEA FILE=BIOSIS SPE=ON ABB=ON HYDROLY?
L24         17 SEA FILE=BIOSIS SPE=ON ABB=ON (L20 OR L21) AND L23
L26         48 SEA FILE=BIOSIS SPE=ON ABB=ON (?SYNTHESI? OR FORM? OR
              PRODUC?)(2A)(L20 OR L21)
L27         14 SEA FILE=BIOSIS SPE=ON ABB=ON L24 NOT L26
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=> fil pascal biotechno esbio lifesci

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=> d que 136

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L28         220 SEA BETA!YAMINE OR GLYCOCYAMINE OR GUANIDIN!ACETIC OR ((GUANIDI
              N# OR GUANIDYL)(W) ACETIC) OR GUANIDYLACETIC OR AMIDINOGLYCINE
              OR NSC(W)(1901 OR 227847 OR 26360)
L29         107271 SEA GLYCINE
L30         257737 SEA HYDROLY?
L31         482505 SEA DEGRAD?
L36         1 SEA L28 AND L29 AND (L30 OR L31)
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=> dup rem 136,119,127

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PROCESSING COMPLETED FOR L36

PROCESSING COMPLETED FOR L19

PROCESSING COMPLETED FOR L27

L37 25 DUP REM L36 L19 L27 (2 DUPLICATES REMOVED)

ANSWER '1' FROM FILE BIOTECHNO

ANSWERS '2-13' FROM FILE CAPLUS

ANSWERS '14-25' FROM FILE BIOSIS

=&gt; d iall 1; d ibib abs hitind 2-13; d iall 14-25; fil hom

L37 ANSWER 1 OF 25 BIOTECHNO COPYRIGHT 2009 Elsevier Science B.V. on STN  
DUPLICATEACCESSION NUMBER: 1987:17161149 BIOTECHNO Full-textTITLE: A new enzymic determination of guanidinoacetic  
acid in urine

AUTHOR: Shirokane Y.; Utsushikawa M.; Nakajima M.-O.

CORPORATE SOURCE: Department of Clinical Chemistry, Kikkoman General  
Hospital, Chiba-ken, Japan.

SOURCE: Clinical Chemistry, (1987), 33/3 (394-397)

CODEN: CLCHAU ISSN: 0009-9147

DOCUMENT TYPE: Journal; Article

COUNTRY: United States

LANGUAGE: English

ABSTRACT: We developed and evaluated a colorimetric method for enzymic determination of guanidinoacetic acid (GAA) in urine. Endogenous urinary urea was first eliminated by urease (EC 3.5.1.5), and the added urease was then removed from the sample by centrifugal ultrafiltration. GAA in the ultrafiltrate was subsequently hydrolyzed by guanidinoacetate amidinohydrolase (EC 3.5.3.2) to glycine and urea. The latter substance produced an orange chromogen reacting with o-phthalaldehyde and N-(1-naphthyl)-N'-diethylethylenediamine, the absorbance of which at 465 nm was linearly related to concentrations as high as 200 mg/L for standard solutions of GAA. Analytical recovery of GAA added to urine ranged from 94 to 112% (mean 101%) and the within-run and between-run precision (CVs) of the method for the urinary GAA determination averaged 2.2 and 3.5%, respectively. Results correlated well ( $r = 0.983$ ) between the present method and a high-performance liquid chromatographic method. The proposed method is accurate and simple. We saw a great decrease in urinary GAA of patients with suspected or proven renal insufficiency as compared with that of healthy volunteers.

CONTROLLED TERM: \*guanidinoacetic acid; \*kidney disease;  
urease; enzyme assay; human; urine; kidney; normal  
human; diagnosis; clinical article; human cell

CAS REGISTRY NUMBER: (guanidinoacetic acid) 352-97-6, 4294-32-0;  
(urease) 9002-13-5

L37 ANSWER 2 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN DUPLICATE 2

ACCESSION NUMBER: 1928:27129 CAPLUS Full-text

DOCUMENT NUMBER: 22:27129  
 ORIGINAL REFERENCE NO.: 22:3174b-c  
 TITLE: Glycocyamase  
 AUTHOR(S): Karashima, Junji  
 SOURCE: Z. physiol. Chem. (1928), 177, 42-6  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Unavailable

AB Beef liver contains an enzyme which hydrolyzes glycocyamine into glycine and urea. The enzyme was not found in the kidney, pancreas, spleen or lung. It is possible that glycocyamine is an intermediate product of arginine metabolism. Its homolog, guanidinobutyric acid, is known to undergo a similar enzymic cleavage into urea and aminobutyric acid, and both of these guanidino acids might be formed in successive stages in the oxidation of arginine. The enzyme was not found in chicken liver or kidney.

CC 11A (Biological Chemistry: General)

IT 352-97-6, Glycocyamine  
 (enzyme hydrolyzing)

L37 ANSWER 3 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2008:465380 CAPLUS Full-text

DOCUMENT NUMBER: 149:29843

TITLE: Effects In Vitro of Guanidinoacetate on Adenine Nucleotide Hydrolysis and Acetylcholinesterase Activity in Tissues from Adult Rats

AUTHOR(S): Spanevello, Roselia Maria; Souza Wyse, Angela Terezinha; Mazzanti, Cinthia Melazzo; Schmatz, Roberta; Stefanello, Naiara; Goncalves, Jamile Fabbrin; Bagatini, Margarete; Battisti, Vanessa; Morsch, Vera Maria; Schetinger, Maria Rosa Chitolina  
 CORPORATE SOURCE: Departamento de Bioquimica, Instituto de Ciencias Basicas da Saude, Universidade Federal do Rio Grande do Sul, Porto Alegre, 90035-003, Brazil

SOURCE: Neurochemical Research (2008), 33(6), 1129-1137  
 CODEN: NEREDZ; ISSN: 0364-3190

PUBLISHER: Springer

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Guanidinoacetate methyltransferase (GAMT) deficiency is a disorder of creatine metabolism characterized by low plasma creatine concns. in combination with elevated guanidinoacetate (GAA) concns. The aim of this work was to investigate the in vitro effect of guanidinoacetate in NTPDase, 5'-nucleotidase and acetylcholinesterase activities in the synaptosomes, platelets and blood of rats. The results showed that in synaptosomes the NTPDase and 5'-nucleotidase activities were inhibited significantly in the presence of GAA at concns. of 50, 100, 150 and 200  $\mu$ M ( $P < 0.05$ ). However, in platelets GAA at the same concns. caused a significant increase in the activities of these two enzymes ( $P < 0.05$ ). In relation to the acetylcholinesterase activity, GAA caused a significant inhibition in the activity of this enzyme in blood at concns. of 150 and 200  $\mu$ M ( $P < 0.05$ ), but did not alter the acetylcholinesterase activity in synaptosomes from the cerebral cortex. Our results suggest that alterations caused by GAA in the activities of these enzymes may contribute to the understanding of the neurol. dysfunction of GAMT-deficient patients.

CC 14-14 (Mammalian Pathological Biochemistry)

Section cross-reference(s): 7

IT Brain

(cerebral cortex; guanidinoacetate effects on adenine nucleotide hydrolysis and acetylcholinesterase activity in tissues from adult rats in model of guanidinoacetate methyltransferase deficiency)

IT Blood  
 Blood platelet  
 Disease models  
 Nervous system, disease  
 Rat  
 Rattus norvegicus  
 (guanidinoacetate effects on adenine nucleotide hydrolysis  
 and acetylcholinesterase activity in tissues from adult rats in model  
 of guanidinoacetate methyltransferase deficiency)

IT Synapse  
 (synaptosome; guanidinoacetate effects on adenine nucleotide  
 hydrolysis and acetylcholinesterase activity in tissues from  
 adult rats in model of guanidinoacetate methyltransferase deficiency)

IT 352-97-6 9029-75-8, Guanidinoacetate methyltransferase  
 RL: ADV (Adverse effect, including toxicity); BSU (Biological study,  
 unclassified); BIOL (Biological study)  
 (guanidinoacetate effects on adenine nucleotide hydrolysis  
 and acetylcholinesterase activity in tissues from adult rats in model  
 of guanidinoacetate methyltransferase deficiency)

IT 9000-81-1, Acetylcholinesterase 9000-95-7, Apyrase 9027-73-0,  
 5'-Nucleotidase  
 RL: BSU (Biological study, unclassified); BIOL (Biological study)  
 (guanidinoacetate effects on adenine nucleotide hydrolysis  
 and acetylcholinesterase activity in tissues from adult rats in model  
 of guanidinoacetate methyltransferase deficiency)

REFERENCE COUNT: 71 THERE ARE 71 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L37 ANSWER 4 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 2001:469305 CAPLUS Full-text  
 DOCUMENT NUMBER: 135:58155  
 TITLE: Method for diagnosing kidney function  
 INVENTOR(S): Nakamura, Osamu  
 PATENT ASSIGNEE(S): Nippon Zoki Pharmaceutical Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001174459	A	20010629	JP 1999-358230	19991217
PRIORITY APPLN. INFO.:			JP 1999-358230	19991217

AB A convenient and reliable method is provided for diagnosing kidney function by measuring glycytylamidine in a body fluid or urine sample collected from an animal. No glycytylamidine is detected with blood serum samples from healthy persons, while it is detected with all serum samples from kidney failure patients. More than five times quantity of glycytylamidine in an average is detected with urine samples from the patients in comparison with healthy persons.

IC ICM G01N033-50  
 ICS G01N030-88; G01N033-493; G01N033-70  
 CC 9-3 (Biochemical Methods)  
 Section cross-reference(s): 14  
 IT Animal  
 Blood analysis  
 Blood serum  
 Body fluid



Diagnosis

HPLC

Hydrolysis

Urine analysis

(method for diagnosing kidney function)

IT 352-97-6, Glycocyamine

RL: ANT (Analyte); PEP (Physical, engineering or chemical process); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)

(method for diagnosing kidney function)

L37 ANSWER 5 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1998:189090 CAPLUS Full-text

DOCUMENT NUMBER: 128:286908

ORIGINAL REFERENCE NO.: 128:56705a,56708a

TITLE: A potentiometric study of guanidinoacetic acid complexation with the ions Mn(II), Co(II), Ni(II), Cu(II), Zn(II), Cd(II) and Pb(II)

AUTHOR(S): Felcman, Judith; De Miranda, Jussara Lopes

CORPORATE SOURCE: Departamento de Quimica, PUC/ RJ, Marques de Sao Vicente, Rio de Janeiro, 22453-900, Brazil

SOURCE: Journal of the Brazilian Chemical Society (1997), 8(6), 575-580

CODEN: JOCSET; ISSN: 0103-5053

PUBLISHER: Sociedade Brasileira de Quimica

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The guanidinoacetic acid (GAA) complexation with some ions of biol. interest, such as Mn(II), Co(II), Ni(II), Cu(II), Zn(II), Cd(II) and Pb(II) has been investigated. GAA was prepared and analyzed. The dissociation consts. of its complexes and hydroxy complexes with the above ions have been potentiometrically determined. Most of the ions formed complexes of the type MGAA, M(GAA)<sub>2</sub> and M(GAA)<sub>3</sub>. Zn(II) and Cu(II) did not form M(GAA)<sub>3</sub> and M(GAA)(OH)<sub>3</sub>. The hydrolysis of CuGAA and ZnGAA begins near pH 6-7; for the other MGAA complexes it begins near pH 8. Above these pH values, polymerized, hydrolyzed species predominated.

CC 68-3 (Phase Equilibriums, Chemical Equilibriums, and Solutions)

Section cross-reference(s): 6, 34, 72, 78

IT Complexation

Dissociation constant

Formation constant

Hydrolysis

(potentiometric study of guanidinoacetic acid complexation with ions Mn(II), Co(II), Ni(II), Cu(II), Zn(II), Cd(II) and Pb(II))

IT 352-97-6D, metal complexes 7439-92-1D, Lead, complexes with guanidinoacetic acid, properties 7439-96-5D, Manganese, complexes with guanidinoacetic acid, properties 7440-02-0D, Nickel, complexes with guanidinoacetic acid, properties 7440-43-9D, Cadmium, complexes with guanidinoacetic acid, properties 7440-48-4D, Cobalt, complexes with guanidinoacetic acid, properties 7440-50-8D, Copper, complexes with guanidinoacetic acid, properties 7440-66-6D, Zinc, complexes with guanidinoacetic acid, properties

RL: FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); FORM (Formation, nonpreparative); PROC (Process); RACT (Reactant or reagent)

(potentiometric study of guanidinoacetic acid complexation with ions Mn(II), Co(II), Ni(II), Cu(II), Zn(II), Cd(II) and Pb(II))

IT 352-97-6, Guanidinoacetic acid 14280-50-3, Lead(2+), properties 14701-22-5, Nickel(2+), properties 15158-11-9, Copper(2+), properties 16397-91-4, Manganese(2+), properties 22537-48-0, Cadmium(2+),

properties 22541-53-3, Cobalt(2+), properties 23713-49-7, Zinc(2+),  
properties

RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT  
(Reactant); PROC (Process); RACT (Reactant or reagent)

(potentiometric study of guanidinoacetic acid complexation with ions  
Mn(II), Co(II), Ni(II), Cu(II), Zn(II), Cd(II) and Pb(II))

REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L37 ANSWER 6 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1991:514219 CAPLUS Full-text

DOCUMENT NUMBER: 115:114219

ORIGINAL REFERENCE NO.: 115:19577a,19580a

TITLE: Synthesis, DNA binding properties and biological  
evaluation of novel oligo-meta-benzamides related to  
netropsin

AUTHOR(S): Debart, F.; Gosselin, G.; Rayner, B.; Le Ber, P.;  
Auclair, C.; Balzarini, J.; De Clercq, E.; Paoletti,  
C.; Imbach, J. L.

CORPORATE SOURCE: Lab. Chim. Bio-Org., Univ. Montpellier II,  
Montpellier, 34095, Fr.

SOURCE: European Journal of Medicinal Chemistry (1991), 26(3),  
261-71

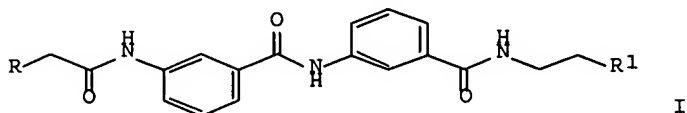
CODEN: EJMCA5; ISSN: 0223-5234

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 115:114219

GI



AB A series of oligo-met-benzamides, e.g., I [R = NHC(:NH)NH<sub>2</sub>, R<sub>1</sub> = C(:NH)NH<sub>2</sub>;  
CH<sub>2</sub>NH(CH<sub>2</sub>)<sub>4</sub>NH<sub>2</sub>; R = CH<sub>2</sub>CONH(CH<sub>2</sub>)<sub>3</sub>NH(CH<sub>2</sub>)<sub>4</sub>NH<sub>2</sub>, R<sub>1</sub> = CH<sub>2</sub>NH(CH<sub>2</sub>)<sub>4</sub>NH<sub>2</sub>]  
structurally related to the natural agent netropsin have been synthesized.  
Their binding consts. to double-stranded polynucleotides as well as their  
cytostatic activity against tumor cell lines and their in vitro activity  
against a wide variety of DNA and RNA viruses have been determined Most of  
these analogs retain the DNA binding capacity of the parent compound but with  
a notable decrease of selectivity and affinity. Like netropsin, the evaluated  
analogs did not show significant cytostatic and antiviral activity.

CC 26-6 (Biomolecules and Their Synthetic Analogs)  
Section cross-reference(s): 1, 10

IT 14901-20-3, Guanidinoacetic acid hydrochloride  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(condensation of, with aminobenzamides)

IT 16360-91-1P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation and sequential acidic hydrolysis and amination of)

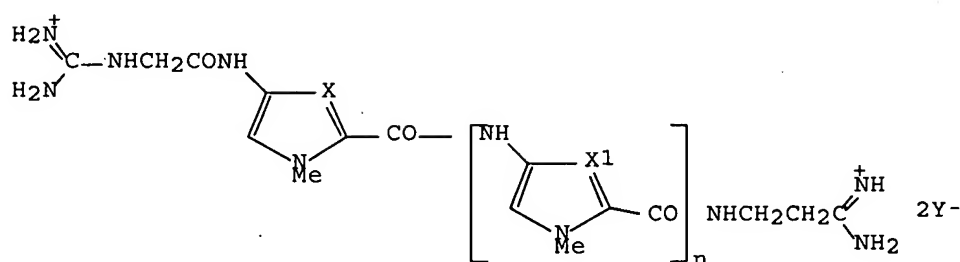
L37 ANSWER 7 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1986:602729 CAPLUS Full-text

DOCUMENT NUMBER: 105:202729

ORIGINAL REFERENCE NO.: 105:32525a,32528a

TITLE:	Molecular recognition between oligopeptides and nucleic acids: novel imidazole-containing oligopeptides related to netropsin that exhibit altered DNA sequence specificity
AUTHOR(S):	Lown, J. William; Krowicki, Krzysztof; Bhat, U. Ganapathi; Skorobogaty, Andrew; Ward, Brian; Dabrowiak, James C.
CORPORATE SOURCE:	Dep. Chem., Univ. Alberta, Edmonton, AB, T6G 2G2, Can.
SOURCE:	Biochemistry (1986), 25(23), 7408-16 CODEN: BICHAW; ISSN: 0006-2960
DOCUMENT TYPE:	Journal
LANGUAGE:	English
GI	



- I,  $X=CH$ ,  $X^1=N$ ,  $Y=Cl$ ,  $n=1$   
 II,  $X=N$ ,  $X^1=CH$ ,  $Y=Cl$ ,  $n=1$   
 III,  $X=X^1=N$ ,  $2Y=SO_4$ ,  $n=1$   
 IV,  $X=X^1=N$ ,  $2Y=SO_4$ ,  $n=2$   
 V,  $X=X^1=CH$ ,  $2Y=SO_4$ ,  $n=1$

AB Oligopeptides, I [104394-12-9], II [101809-75-0], III [101772-43-4], and (IV) [104394-13-0], that are structurally related to the antiviral antitumor antibiotic netropsin, but in which each of the pyrrole units is successively replaced by an imidazole moiety, were prepared. These compds. bound to duplex DNA with consts. in the range  $(1.06-1.98) \times 10^6 \text{ M}^{-1}$  but not to single-stranded DNA. Since they bind to T4 DNA, it is inferred that, like the parent antibiotic netropsin V [1438-30-8], they are also minor-groove selective. I-IV exhibited a progressively decreasing preference for AT sites in binding studies with both native DNS and synthetic oligonucleotides and a corresponding increasing acceptance of GC base pairs. Footprinting expts., with a 139 base pair HindIII/NciI restriction fragment from pBR 322 DNA, revealed that these lexitropsins, or information-reading oligopeptides, recognize more sites than the parent netropsin. In addition, some regions of enhanced nuclease action as the result of drug binding to the fragment were identified. The diimidazole compound in particular recognized GC-rich sites, implying the formation of new H bonds between G-C(2)NH<sub>2</sub> in the minor groove and the addnl. N3 imidazole nitrogens. It is clear however that, since the lexitropsins appear to tolerate the original (AT)<sub>4</sub> site, an N-methylimidazole group on the ligand will permit either a GC or AT base pair in the binding sequence. Another factor that may be significant in mol. recognition is the high neg. electrostatic potential of A-T regions of the minor groove, which is likely to strongly influence binding of these cationic species to DNA. This approach may ultimately permit the structurally rational alteration of sequence specificity in the mol. recognition of oligopeptides for DNA.

CC 1-3 (Pharmacology)

Section cross-reference(s): 6

IT 104394-03-8 104394-06-1  
 RL: BIOL (Biological study)  
 (hydrolysis and reaction with ammonia)  
 IT 104394-02-7  
 RL: BIOL (Biological study)  
 (hydrolysis and reaction with ammonia of)  
 IT 14901-20-3  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with aminoimidazolyl derivative)

L37 ANSWER 8 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 1966:483759 CAPLUS Full-text  
 DOCUMENT NUMBER: 65:83759  
 ORIGINAL REFERENCE NO.: 65:15737d-f  
 TITLE: Specificity of different deamidinases  
 AUTHOR(S): Baret, Raymond; Mourgue, Marcel; Broc, Alfred  
 CORPORATE SOURCE: Fac. Med. Pharm., Marseilles, Fr.  
 SOURCE: Bulletin des Travaux de la Societe de Pharmacie de  
 Lyon (1965), 9(3), 181-93  
 CODEN: BTSLAV; ISSN: 0037-9107  
 DOCUMENT TYPE: Journal  
 LANGUAGE: French

AB Using dog and bovine arginases, rabbit heteroarginase, and Raia clavata  
 guanidinobutyrase, enzymic hydrolysis of different guanidino derivs.  
 (agmatine, L-arginine, L-arginic acid,  $\gamma$ -guanidinobutyric acid, and some  
 guanidinocarboxylic acids) was examined in 4, 24, or 48 h. by determining urea  
 and monosubstituted guanidino groups. Arginase binds to the substrate only  
 when the carboxyl group has an  $\alpha$ -amino group free or included in a peptide  
 bond and is separated from the guanidino group by 4 CH<sub>2</sub> groups.  
 Heteroarginase specificity is less rigid because neither an  $\alpha$ -amino group nor  
 a definite chain length is required.  $\gamma$ -Guanidinobutyrase hydrolyzes only  
 derivs., the carboxyl and guanidino groups of which have no substituents and  
 are separated by 3, 4, (maximum hydrolysis), or 6 CH<sub>2</sub> groups.

CC 57 (Enzymes)

IT 2446-72-2, Glycine, N-(N-amidinoglycyl)-  
 (hydrolysis by arginase)

IT 157-07-3, Valeric acid, 5-guanidino-2-hydroxy-, L- 353-09-3,  
 $\beta$ -Alanine, N-amidino- 462-93-1, Valeric acid, 5-guanidino-  
 463-00-3, Butyric acid, 4-guanidino- 6659-35-4, Hexanoic acid,  
 6-guanidino- 7010-89-1, Butyric acid, 4-guanidino-3-hydroxy-  
 68141-53-7, Isoserine, N-amidino-  
 (hydrolysis by guanidinobutyrase and heteroarginase)

IT 352-83-0, Butyric acid, 3-guanidino- 352-97-6, Glycine,  
 N-amidino- 3164-99-6, Butyric acid, 2-guanidino- 4381-80-0,  
 Methionine, N-amidino- 6133-30-8, Aspartic acid, N-amidino-  
 13551-03-6, Serine, N-amidino- 13551-04-7, Alanine, N-amidino-3-phenyl-  
 13551-05-8, Tyrosine, N-amidino- 13551-07-0, Threonine, N-amidino-  
 13551-09-2, Cystine, N,N'-diamidino- 67337-40-0, Alanine, N-amidino-  
 (hydrolysis by heteroarginase)

IT 74-79-3, Arginine  
 (hydrolysis of, by arginase and heteroarginase)

L37 ANSWER 9 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 1951:19457 CAPLUS Full-text  
 DOCUMENT NUMBER: 45:19457  
 ORIGINAL REFERENCE NO.: 45:3459b-d  
 TITLE: The specificity of action of certain bacterial  
 deguanidases on precursors of urea, and on arginine

dihydrolase  
 AUTHOR(S): Roche, Jean; Lacombe, Gabrielle; Girard, Henri  
 CORPORATE SOURCE: College of France, Paris  
 SOURCE: Biochimica et Biophysica Acta (1950), 6, 210-16  
 CODEN: BBACAQ; ISSN: 0006-3002  
 DOCUMENT TYPE: Journal  
 LANGUAGE: French

AB cf. C.A. 43, 3061g. Creatine (I) is hydrolyzed by actively growing cultures of *Pseudomonas eisenbergii* to form 1 mole of urea/mole of substrate, and a smaller amount of  $\text{NH}_3$ , presumably from sarcosine. Optimum pH for the reaction is 6.7. Creatinine (II) and glycocyamine (III) are not attacked. Arginine (IV) is split directly to give  $\text{NH}_3$ . Resting cultures hydrolyze IV but are inactive toward I. The creatinase is inhibited by  $\text{NaN}_3$ , KCN, and Na diethylthiocarbamate (V) and is activated by  $\text{Fe}^{++}$ . Newly isolated *Pseudomonas ovalis* hydrolyzes III readily, I slowly, and II not at all. After repeated transplantation on a medium containing I, it actively decompose all 3 derivs. with the formation of urea. The creatininase differs from creatinase in that it is not inhibited by V or activated by  $\text{Fe}^{++}$ , and both enzymes are distinguishable from arginine dihydrolase. None of the substrates was attacked by a cell-free extract

CC 11C (Biological Chemistry: Microbiology)

IT 57-00-1, Creatine 60-27-5, Creatinine 352-97-6, Glycocyamine  
 (hydrolysis by *Pseudomonas eisenbergii* and *P. ovalis*)

IT 74-79-3, Arginine  
 (hydrolysis of, by *Pseudomonas eisenbergii* and *P. ovalis*)

L37 ANSWER 10 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1947:22539 CAPLUS Full-text

DOCUMENT NUMBER: 41:22539

ORIGINAL REFERENCE NO.: 41:4525e-g

TITLE: Inability of hepatic arginase to hydrolyze  
 various substituted guanidines, and the specificity of  
 the enzyme

AUTHOR(S): Roche, Jean; Mourgue, Marcel  
 SOURCE: Compt. rend. (1947), 224, 860-2  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Unavailable

AB While the guanido group of arginine and of its hydroxy analog ( $\delta$ -guanidyl- $\alpha$ -hydroxyvaleric acid) is readily split off by arginase, the following other guanido compds. are not hydrolyzed by arginase:  $\alpha$ -guanidyl- $\beta$ -hydroxypropionic acid,  $\alpha$ -guanidyl- $\beta$ -(p-hydroxyphenyl)propionic acid,  $\alpha$ -guanidyl- $\epsilon$ -aminocaproic acid,  
 $\alpha$ , $\delta$ -diguanidylvaleric acid, guanidylacetic acid (glycocyamine),  $\alpha$ -guanidylpropionic acid,  $\beta$ -guanidylpropionic acid,  $\alpha$ -guanidylsuccinic acid, guanidylethanol, 3-guanidyl-1-propanol, 4-guanidyl-1-butylamine (agmatine) and its N-thiomethyl derivative, tetramethylenediguanidine (arcaine), and decamethylenediguanidine (synthalin). It is concluded that an amino or hydroxy group  $\alpha$  to a carboxyl is a necessary prerequisite for arginase activity, and that an  $\alpha$ -guanido group cannot take the place of the  $\alpha$ -amino or hydroxyl groups.

CC 11A (Biological Chemistry: General)

IT Chemical constitution  
 (hydrolysis and, of guanidines)

IT 352-97-6, Glycocyamine 353-09-3,  $\beta$ -Alanine, N-amidino-  
 462-64-6, Valeric acid, 5-guanidino-2-hydroxy- 4353-52-0, Guanidine,  
 (2-hydroxyethyl)- 4362-87-2, Guanidine, (3-hydroxypropyl)- 6133-30-8,  
 Aspartic acid, N-amidino- 6713-94-6, Ornithine, N2,N5-diamidino-  
 13551-05-8, Tyrosine, N-amidino- 67337-40-0, Alanine, N-amidino-  
 91724-85-5, Lysine, N2-amidino- 108865-65-2, Serine, N-amidino-

707542-88-9, Methanesulfenamide, N-4-guanidinobutyl- 874520-48-6,  
 Agmatine, N1-thiomethyl-  
 (arginase action on)

IT 113-00-8, Guanidine  
 (derivs., hydrolysis by arginase)  
 IT 9000-96-8, Arginase  
 (guanidine hydrolysis by, and specificity of)  
 IT 301-15-5, Synthalin 306-60-5, Agmatine 544-05-8, Arcaine  
 (hydrolysis by arginase)  
 IT 74-79-3, Arginine  
 (hydrolysis of, by arginase)

L37 ANSWER 11 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1948:21512 CAPLUS Full-text  
 DOCUMENT NUMBER: 42:21512  
 ORIGINAL REFERENCE NO.: 42:4621h-i  
 TITLE: Enzymic degradation of glycoamine and various  
 substituted guanidines not hydrolyzable by  
 arginase  
 AUTHOR(S): Mourgue, Marcel; Lacombe, Gabrielle  
 CORPORATE SOURCE: Univ. Marseille, Fr.  
 SOURCE: Comptes Rendus des Seances de la Societe de Biologie  
 et de Ses Filiales (1947), 141, 824-6  
 CODEN: CRSBAW; ISSN: 0037-9026  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Unavailable

AB cf. C.A. 41, 2453a, 4525f. Animal tissues, Aspergillus, Mucor, E. coli, B.  
 pyocyaneus, Proteus vulgaris, and Staph. aureus have no action on glycoamine  
 at pH 7-9. Some unidentified bacteria from rabbit feces, and from soil  
 decomp, glycoamine at pH 8.8, and their enzyme system also decomp,  
 methylguanidine, guanido- $\beta$ -hydroxypropionic acid,  $\alpha$ -guanidosuccinic acid,  
 creatinine, and agmatine and its thiomethyl derivative The enzyme probably  
 contains a bivalent metal; it is inhibited by very low concns, of Na  
 diethyldithiocarbamate, NaN<sub>3</sub>, NaCN, and dithizone; and activated by cysteine,  
 Mn<sup>++</sup>, and Fe<sup>++</sup>, but not by Mg<sup>++</sup>, Co<sup>++</sup>, and Zn<sup>++</sup>.

CC 11A (Biological Chemistry: General)

IT 352-97-6, Glycoamine  
 (enzyme action on)

L37 ANSWER 12 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1947:29369 CAPLUS Full-text  
 DOCUMENT NUMBER: 41:29369  
 ORIGINAL REFERENCE NO.: 41:5906e-f  
 TITLE: Electrophoretic determination of changes in the charge  
 of ovalbumin after action of chloropicrin on the  
 sulfhydryl groups  
 AUTHOR(S): Fredericq, Eugene; Desreux, Victor  
 CORPORATE SOURCE: Univ. Liege, Belg.  
 SOURCE: Bulletin de la Societe de Chimie Biologique (1947),  
 29, 105-8  
 CODEN: BSCIA3; ISSN: 0037-9042  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Unavailable

AB Ovalbumin, with all free and masked -SH groups blocked by reaction with  
 chloropicrin, behaved like untreated ovalbumin in the Tiselius apparatus,  
 except that the isoelec. point was displaced about 0.2 pH unit toward the acid  
 side.

CC 11A (Biological Chemistry: General)

IT Chemical constitution  
 (hydrolysis and, of guanidines)

IT 352-97-6, Glycocyamine 353-09-3,  $\beta$ -Alanine, N-amidino-462-64-6, Valeric acid, 5-guanidino-2-hydroxy- 4353-52-0, Guanidine, (2-hydroxyethyl)- 4362-87-2, Guanidine, (3-hydroxypropyl)- 6133-30-8, Aspartic acid, N-amidino- 6713-94-6, Ornithine, N2,N5-diamidino-13551-05-8, Tyrosine, N-amidino- 67337-40-0, Alanine, N-amidino-91724-85-5, Lysine, N2-amidino- 108865-65-2, Serine, N-amidino-707542-88-9, Methanesulfenamide, N-4-guanidinobutyl- 874520-48-6, Agmatine, N1-thiomethyl-  
(arginase action on)

L37 ANSWER 13 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1947:29370 CAPLUS Full-text  
DOCUMENT NUMBER: 41:29370  
ORIGINAL REFERENCE NO.: 41:5906f-g  
TITLE: Specificity of hepatic arginase  
AUTHOR(S): Roche, Jean; Mourgue, Marcel  
CORPORATE SOURCE: Univ. Marseille  
SOURCE: Comptes Rendus des Seances de la Societe de Biologie et de Ses Filiales (1946), 140(No. 9/10), 310-11  
CODEN: CRSBAW; ISSN: 0037-9026  
DOCUMENT TYPE: Journal  
LANGUAGE: Unavailable

AB See C.A. 41, 4525f.

CC 11A (Biological Chemistry: General)

IT Chemical constitution  
(hydrolysis and, of guanidines)

IT 352-97-6, Glycocyamine 353-09-3,  $\beta$ -Alanine, N-amidino-4353-52-0, Guanidine, (2-hydroxyethyl)- 4362-87-2, Guanidine, (3-hydroxypropyl)- 6713-94-6, Ornithine, N2,N5-diamidino- 13551-05-8, Tyrosine, N-amidino- 67337-40-0, Alanine, N-amidino- 91724-85-5, Lysine, N2-amidino- 108865-65-2, Serine, N-amidino- 707542-88-9, Methanesulfenamide, N-4-guanidinobutyl- 874520-48-6, Agmatine, N1-thiomethyl-  
(arginase action on)

IT 113-00-8, Guanidine  
(derivs., hydrolysis by arginase)

IT 9000-96-8, Arginase  
(guanidine hydrolysis by, and specificity of)

IT 301-15-5, Synthalin 306-60-5, Agmatine 544-05-8, Arcaine  
(hydrolysis by arginase)

IT 74-79-3, Arginine  
(hydrolysis of, by arginase)

L37 ANSWER 14 OF 25 BIOSIS COPYRIGHT (c) 2009 The Thomson Corporation on STN

ACCESSION NUMBER: 1977:150290 BIOSIS Full-text  
DOCUMENT NUMBER: PREV197763045154; BA63:45154  
TITLE: STRUCTURE ACTIVITY RELATIONSHIPS OF GAMMA AMINO BUTYRIC-ACID AND ITS RELATIVES ON THE EXCITABILITY OF AN IDENTIFIED MOLLUSCAN GIANT NEURON ACHATINA-FULICA.  
AUTHOR(S): TAKEUCHI H; YOKOI I; HIRAMATSU M  
SOURCE: Comparative Biochemistry and Physiology C Comparative Pharmacology, (1977) Vol. 56, No. 1, pp. 63-73.  
CODEN: CBPCBB. ISSN: 0306-4492.  
DOCUMENT TYPE: Article  
FILE SEGMENT: BA  
LANGUAGE: Unavailable

ABSTRACT: A spontaneously firing giant neuron (TAN, tonically autoactive neuron) sensitive to GABA (inhibition) was identified in the subesophageal ganglia of *A. fulica*. The effect of GABA and its 80 relatives were examined (by bath application) on TAN excitability. Among them, GABA showed the strongest inhibitory effect (critical concentration approx.  $10^{-5}$  g/ml). 4-amino-3-hydroxybutanoic acid, 4-amino-2-hydroxybutanoic acid, 5-amino pentanoic acid and guanidinoacetic acid at  $10^{-4}$  g/ml showed inhibitory effects. The GABA effect on the TAN neuromembrane was due to direct hyperpolarization, by means of the local GABA administration on the TAN surface (microdrop application). No antagonistic action of 3 convulsant alkaloids (bicuculline, strychnine and picrotoxin) to the GABA effect on TAN excitability was detected. To indicate the electrical resistance of the TAN neuromembrane, its current-voltage relationships (I-V curve) were measured, by applying a transmembrane triangular current. The I-V curve measured in the GABA application at  $3 \times 10^{-5}$  g/ml was concordant in the wide range of potential level with that of the normal state, when 2 I-V curves were superimposed by using the firing level as the common standard. GABA was identified in the subesophageal ganglia of *A. fulica*; its quantity was augmented after hydrolysis of ganglionic extract.

CONCEPT CODE: Biochemistry studies - General 10060  
 Biochemistry studies - Proteins, peptides and amino acids 10064  
 Biophysics - General 10502  
 Biophysics - Methods and techniques 10504  
 Biophysics - Membrane phenomena 10508  
 Physiology - Methods 12006  
 Nervous system - General and methods 20501  
 Nervous system - Physiology and biochemistry 20504  
 Pharmacology - Drug metabolism and metabolic stimulators 22003  
 Pharmacology - Neuropharmacology 22024  
 Plant physiology - Chemical constituents 51522  
 Pharmacognosy and pharmaceutical botany 54000  
 Invertebrata: comparative, experimental morphology, physiology and pathology - Mollusca 64026

INDEX TERMS: Major Concepts  
 Biochemistry and Molecular Biophysics; Membranes (Cell Biology); Nervous System (Neural Coordination); Pharmacology; Physiology

INDEX TERMS: Miscellaneous Descriptors  
 4 AMINO-3-HYDROXY BUTANOIC-ACID 4 AMINO-2-HYDROXY BUTANOIC-ACID 5 AMINO PENTANOIC-ACID GUANIDINO ACETIC-ACID BICUCULLINE STRYCHNINE PICO TOXIN  
 CURRENT VOLTAGE RELATION MEMBRANE POTENTIAL ELECTRO PHYSIOLOGY

ORGANISM: Classifier  
 Fumariaceae 26088  
 Super Taxa  
 Dicotyledones; Angiospermae; Spermatophyta; Plantae  
 Taxa Notes  
 Angiosperms, Dicots, Plants, Spermatophytes, Vascular Plants

ORGANISM: Classifier  
 Loganiaceae 26300  
 Super Taxa  
 Dicotyledones; Angiospermae; Spermatophyta; Plantae  
 Taxa Notes  
 Angiosperms, Dicots, Plants, Spermatophytes, Vascular Plants

ORGANISM: Classifier



Menispermaceae 26370  
 Super Taxa  
 Dicotyledones; Angiospermae; Spermatophyta; Plantae  
 Taxa Notes  
 Angiosperms, Dicots, Plants, Spermatophytes, Vascular  
 Plants  
 ORGANISM: Classifier  
 Papaveraceae 26515  
 Super Taxa  
 Dicotyledones; Angiospermae; Spermatophyta; Plantae  
 Taxa Notes  
 Angiosperms, Dicots, Plants, Spermatophytes, Vascular  
 Plants  
 ORGANISM: Classifier  
 Gastropoda 61200  
 Super Taxa  
 Mollusca; Invertebrata; Animalia  
 Taxa Notes  
 Animals, Invertebrates, Mollusks  
 REGISTRY NUMBER: 107-92-6 (BUTANOIC-ACID)  
 660-88-8 (5 AMINO PENTANOIC-ACID)  
 352-97-6 (GUANIDINO ACETIC  
 -ACID)  
 485-49-4 (BICUCULLINE)  
 57-24-9 (STRYCHNINE)  
 124-87-8 (PICRO TOXIN)  
 13477-53-7 (4 AMINO-2-HYDROXY BUTANOIC-ACID)

L37 ANSWER 15 OF 25 BIOSIS COPYRIGHT (c) 2009 The Thomson Corporation on  
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ACCESSION NUMBER: 1968:81184 BIOSIS Full-text  
 DOCUMENT NUMBER: PREV19684900081187; BA49:81187  
 TITLE: Properties and amino acid composition of purified ATP:  
 guanidinoacetate phosphotransferase [Engl. sum.].  
 Original Title: Proprietes et composition en acides amines  
 de L'ATP: Guanidinoacetate phos-photransferase purifiee  
 [Engl. sum.].  
 AUTHOR(S): PRADEL, LOUISE-ANNE; KASSAB, RHIDA; CONLAY, CAROLINE; VAN  
 THOAI, NGUYEN  
 CORPORATE SOURCE: Coll. Fr., Paris, Fr.  
 SOURCE: BIOCHIM BIO PHYS ACTA, (1968) Vol. 154, No. 2, pp. 305-314.  
 DOCUMENT TYPE: Article  
 FILE SEGMENT: BA  
 LANGUAGE: Unavailable  
 ENTRY DATE: Entered STN: May 2007  
 Last Updated on STN: May 2007

ABSTRACT:ATP: guanidinoacetate phosphotransferase (EC 2.7.3.1) has been  
 purified by (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub> fractionation, molecular sieving on Sephadex G-100 and  
 DEAE-Sephadex chromatography. The enzyme, which has been purified 30-fold,  
 appears to be homogeneous on analytical centrifugation, ion-exchange  
 chromatography and gel electrophoresis. The molecular weight value obtained by  
 analytical centrifugation (89 000 [plus or minus] 2200) is near that calculated  
 from amino acid composition (87 500). Glycocyamine and creatine  
 kinases have very similar amino acid compositions. In the former enzyme, there  
 is more tyrosine, glycine, alanine than in the latter and twice less the number  
 of histidine residues. It contains 20 to 22 -SH groups per molecule and no  
 cystine. On fingerprint analysis of the tryptic hydrolysate of  
 S-[I-14C]succinylglycocyamine kinase about half the number of peptides which  
 would be expected from the 95 arginine + lysine residues are revealed. This  
 fact suggests that the Nephthys coeca muscle glycocyamine kinase is

composed of 2 similar subunits. Two neutral labelled peptides are found; one of them, containing much label, may correspond to the cysteine active site.

ABSTRACT AUTHORS: Authors

CONCEPT CODE: Invertebrata: comparative, experimental morphology,  
physiology and pathology - Annelida 64030

INDEX TERMS: Major Concepts  
Zoology

INDEX TERMS: Parts, Structures, & Systems of Organisms  
muscle: muscular system

INDEX TERMS: Chemicals & Biochemicals  
alanine; cystine; arginine;  
S-[I-14C]succinylglycocysteine; lysine; creatine kinases;  
glycine; kinases; creatine; glycocysteine  
kinase [EC 2.7.3.1]; EC 2.7.3.1; guanidinoacetate; amino  
acid; succinylglycocysteine kinase; phosphotransferase;  
histidine; cysteine; Nephthys coeca muscle  
glycocysteine kinase; guanidinoacetate  
phosphotransferase; tyrosine; ATP

ORGANISM: Classifier  
Annelida 65000  
Super Taxa  
Invertebrata; Animalia  
Organism Name  
annelid (common)  
Taxa Notes  
Animals, Annelids, Invertebrates

ORGANISM: Classifier  
Polychaeta 65500  
Super Taxa  
Annelida; Invertebrata; Animalia  
Organism Name  
Nephthys (genus)  
Taxa Notes  
Animals, Annelids, Invertebrates

REGISTRY NUMBER: 302-72-7 (alanine)  
923-32-0 (cystine)  
7200-25-1 (arginine)  
70-54-2 (lysine)  
56-40-6 (glycine)  
57-00-1 (creatine)  
9026-60-2 (glycocysteine kinase)  
9026-60-2 (EC 2.7.3.1)  
4294-32-0 (guanidinoacetate)  
9031-09-8 (phosphotransferase)  
4998-57-6 (histidine)  
3374-22-9 (cysteine)  
556-03-6 (tyrosine)  
111839-44-2 (ATP)

L37 ANSWER 16 OF 25 BIOSIS COPYRIGHT (c) 2009 The Thomson Corporation on  
STN

ACCESSION NUMBER: 1968:203 BIOSIS Full-text

DOCUMENT NUMBER: PREV19684900000203; BA49:203

TITLE: Research on pre-biological evolution: I. Amino acid  
composition of microspheres obtained from ammonium cyanide  
Society of Chemical Biology: Colloquium on the Biochemical  
aspects of phylogenesis, Montpellier, Fr., 28-29 October,  
1966 [Engl. and Ger. sum.].  
Original Title: Recherches sur evolution pre-biologique:  
I. Composition en amino-acides des microspherules obtenues

a partir du cyanure d'ammonium In: Societe de Chimie  
Biologique: Colloque sur les aspects biochimiques de la  
Phylogenesse, Montpellier, Fr., 28-29 octobre 1966 [Engl.  
and Ger. sum.].

AUTHOR(S): LABADIE, M.; JENSEN, R.; NEUZIL, E.  
CORPORATE SOURCE: Fac. Med. and Pharm., Bordeaux, Fr.  
SOURCE: BULL SOC CHIM BIOL, (1967) Vol. 49, No. 6, pp. 673-682.  
DOCUMENT TYPE: Article  
FILE SEGMENT: BA  
LANGUAGE: Unavailable  
ENTRY DATE: Entered STN: May 2007  
Last Updated on STN: May 2007

ABSTRACT: Heating an aqueous solution of ammonium cyanide leads to the formation of a black precipitate and of a colored supernatant. When cooling, the supernatant forms microspheres, the morphological aspect of which are described, as well as some physico-chemical properties. The acid  
\*\*\*hydrolysis\*\*\* of the microspheres liberates amino acids, urea, guanidine,  
\*\*\*glycocyanine\*\*\*; their chemical composition is similar to the composition of the hydrosoluble polymers present in the supernatant and of the insoluble black precipitate. The amino acids of the different fractions do not appear to be linked by peptidic bonds. ABSTRACT AUTHORS: Authors

CONCEPT CODE: Evolution 01500  
INDEX TERMS: Major Concepts  
Evolution and Adaptation  
INDEX TERMS: Chemicals & Biochemicals  
ammonium; Amino acid; urea; cyanide; ammonium cyanide;  
guanidine; glycocyanine  
REGISTRY NUMBER: 14798-03-9 (ammonium)  
57-13-6 (urea)  
57-12-5 (cyanide)  
12211-52-8 (ammonium cyanide)  
113-00-8 (guanidine)

L37 ANSWER 17 OF 25 BIOSIS COPYRIGHT (c) 2009 The Thomson Corporation on  
STN

ACCESSION NUMBER: 1959:36757 BIOSIS Full-text  
DOCUMENT NUMBER: PREV19593300036787; BA33:36787  
TITLE: The enzymatic synthesis of S-adenosyl-L-homocysteine from  
adenosine and homocysteine.  
AUTHOR(S): de la HABA, G.; CANTONI, G. L.  
CORPORATE SOURCE: U. S. Publ. Health Serv., Bethesda, Md.  
SOURCE: JOUR BIOL CHEM, (1959) Vol. 234, No. 3, pp. 603-608.  
DOCUMENT TYPE: Article  
FILE SEGMENT: BA  
LANGUAGE: Unavailable  
ENTRY DATE: Entered STN: May 2007  
Last Updated on STN: May 2007

ABSTRACT: An enzyme was found in rat liver which condenses adenosine and L-homocysteine to yield S-adenosyl-L-homocysteine which was identified (a) chromatographically, (b) by methylation to S-adenosyl-L-methionine identified by paper ionophoresis and enzymatically, and (c) by elementary analysis of the crystalline product as well as by the melting point of this material and its picrate derivative. The equilibrium of this reaction lies far in the direction of condensation. However, S-adenosyl-L-homocysteine will be hydrolyzed by this enzyme if the products of the reaction, adenosine and L-homocysteine, are removed enzymatically. A convenient method for the enzymatic synthesis of S-adenosyl-L-homocysteine and its isolation and crystallization is described. A rapid spectrophotometric assay for S-adenosyl-L-homocysteine has been developed with the use of the condensing enzyme coupled to adenosine deaminase and thetin-homocysteine methyltransferase. The enzyme is highly specific for

adenosine and L-homocysteine. No other nucleoside or mercaptan tested would substitute. On methylation of S-adenosyl-L-homocysteine, S-adenosyl-L-methionine is obtained which was shown to be only 50% effective in the enzymatic methylation of guanidinoacetic to creatine. The significance of this result is discussed. ABSTRACT AUTHORS: Auth. summ

CONCEPT CODE: Enzymes - General and comparative studies: coenzymes  
10802

INDEX TERMS: Major Concepts  
Enzymology (Biochemistry and Molecular Biophysics)

INDEX TERMS: Parts, Structures, & Systems of Organisms  
liver: digestive system

INDEX TERMS: Chemicals & Biochemicals  
S-adenosyl-L-homocysteine; L-homocysteine; nucleoside;  
adenosine deaminase [EC 3.5.4.4]; homocysteine;  
thetin-homocysteine methylpherase [EC 2.1.1.3];  
S-adenosyl-L-methionine; creatine; adenosine

ORGANISM: Classifier  
Muridae 86375  
Super Taxa  
Rodentia; Mammalia; Vertebrata; Chordata; Animalia  
Organism Name  
rat (common)  
Taxa Notes  
Animals, Chordates, Mammals, Nonhuman Vertebrates,  
Nonhuman Mammals, Rodents, Vertebrates

REGISTRY NUMBER: 979-92-0 (S-adenosyl-L-homocysteine)  
6027-13-0 (L-homocysteine)  
214692-96-3 (adenosine deaminase)  
214692-96-3 (EC 3.5.4.4)  
6027-13-0 (homocysteine)  
29908-03-0 (S-adenosyl-L-methionine)  
57-00-1 (creatine)  
58-61-7 (adenosine)

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ACCESSION NUMBER: 1957:21694 BIOSIS Full-text

DOCUMENT NUMBER: PREV19573100021741; BA31:21741

TITLE: Metabolism of guanidil derivatives. VI. Degradation of  
guanidic derivatives in Streptomyces griseus.  
Original Title: Metabolisme des derives guanidyles. VI.  
Degradation des derives guani-diques chez Streptomyces  
griseus (Waksman).

AUTHOR(S): VAN THOAI, NGUYEN-; HATT, J. L.; AN, TRAN THI; ROCHE, J.

CORPORATE SOURCE: Lab. Biochim. gen. comparee, Coll. France, Paris

SOURCE: BIOCHIM ET BIOPHYS ACTA, (1956) Vol. 22, No. 2, pp.  
337-341.

DOCUMENT TYPE: Article

FILE SEGMENT: BA

LANGUAGE: Unavailable

ENTRY DATE: Entered STN: May 2007  
Last Updated on STN: May 2007

ABSTRACT: S. griseus contains a system of deguanidases which hydrolyze  
, at a pH optimum of 7.5, various mono-substituted guanidines (e.g., L.  
arginine, guanidino-acetic acid, -propionic acid, -butyric  
acid, streptidine, streptomycin). These hydrolases differ from arginase,  
heteroarginase and metaarginase. S. griseus contains also a decarboxylase  
system which oxidizes arginine to guanidinobutyramide. This oxidative system  
is adaptive and its substrate, arginine, serves them as inductor. ABSTRACT  
AUTHORS: Auth. summ

CONCEPT CODE: Bacteriology, general and systematic 30000  
 INDEX TERMS: Major Concepts  
                   Bacteriology  
 INDEX TERMS: Chemicals & Biochemicals  
                   streptomycin; arginine; -butyric acid; guanidino  
                   -acetic acid; -propionic acid; arginase [EC  
                   3.5.3.1]; guanidinobutyramide  
 ORGANISM: Classifier  
                   Bacteria 05000  
                   Super Taxa  
                   Microorganisms  
                   Organism Name  
                   bacteria (common)  
                   Taxa Notes  
                   Bacteria, Eubacteria, Microorganisms  
 ORGANISM: Classifier  
                   Streptomycetes and Related Genera 08840  
                   Super Taxa  
                   Actinomycetes and Related Organisms; Eubacteria;  
                   Bacteria; Microorganisms  
                   Organism Name  
                   Streptomyces griseus (species)  
                   Taxa Notes  
                   Bacteria, Eubacteria, Microorganisms  
 REGISTRY NUMBER: 57-92-1 (streptomycin)  
                   7200-25-1 (arginine)  
                   9000-96-8 (arginase)  
                   9000-96-8 (EC 3.5.3.1)

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ACCESSION NUMBER: 1958:22251 BIOSIS Full-text  
 DOCUMENT NUMBER: PREV19583200022326; BA32:22326  
 TITLE: The annelid phosphagens.  
 AUTHOR(S): HOBSON, G. E.; REES, K. R.  
 CORPORATE SOURCE: Univ. Coll., London  
 SOURCE: BIOCHEM JOUR, (1955) Vol. 61, No. 4, pp. 549-552.  
 DOCUMENT TYPE: Article  
 FILE SEGMENT: BA  
 LANGUAGE: Unavailable  
 ENTRY DATE: Entered STN: May 2007  
                   Last Updated on STN: May 2007

ABSTRACT: On the basis of behavior on hydrolysis, creatine phosphate  
 was found in tissue extracts of *Glycera convoluta*, *Eunice harrassi*, *Scholoplos*  
*armiger*, *Lumbriconereis impatiens*, *Hermione hystrix* arginine phosphate was  
 found in *Nephtys hombergii*, *Leiochone clypeata*, *Amphitrite edwardsi*, *Polymnia*  
*nebulosa*, *Ophelia bicornis*. Both were found in extracts of *Nereis*  
*diversicolor*, *Glycera gigantea*, *Halosydna gelatinosa*, *Eulalia viridis*, *Travisia*  
*forbesii* and *Myxicola infundibulum*. By paper chromatography, the phosphagen in  
*Glycera gigantea* and *Glycera convoluta* was identified as creatine phosphate, in  
*Arenicola marina* as, taurocy-amine phosphate, in *Nereis diversicolor* as  
 \*\*\*glycocyanine\*\*\* phosphate, and in *Maia squinado* as arginine phosphate.

ABSTRACT AUTHORS: L. B. Jaques  
 CONCEPT CODE: Biochemistry studies - General 10060  
 INDEX TERMS: Major Concepts  
                   Biochemistry and Molecular Biophysics  
 INDEX TERMS: Parts, Structures, & Systems of Organisms  
                   tissue  
 INDEX TERMS: Chemicals & Biochemicals  
                   glycocyanine; phosphate; creatine phosphate;

ORGANISM: arginine  
 Classifier  
 Angiospermae 25200  
 Super Taxa  
 Spermatophyta; Plantae  
 Organism Name  
 annelid (common)  
 Taxa Notes  
 Angiosperms, Plants, Spermatophytes, Vascular Plants

ORGANISM: Classifier  
 Malacostraca 75112  
 Super Taxa  
 Crustacea; Arthropoda; Invertebrata; Animalia  
 Organism Name  
 Maia squinado (species)  
 Taxa Notes  
 Animals, Arthropods, Crustaceans, Invertebrates

ORGANISM: Classifier  
 Polychaeta 65500  
 Super Taxa  
 Annelida; Invertebrata; Animalia  
 Organism Name  
 Eunice (genus)  
 Eulalia viridis (species)  
 Ophelia bicornis (species)  
 Leiochone (genus)  
 Glycera convoluta (species)  
 Lumbriconereis impatiens (species)  
 Myxicola (genus)  
 Nephtys hombergii (species)  
 Glycera gigantea (species)  
 Arenicola marina (species)  
 Travisia forbesii (species)  
 Halosydna (genus)  
 Nereis diversicolor (species)  
 Amphitrite edwardsi (species)  
 Polymnia nebulosa (species)  
 Taxa Notes  
 Animals, Annelids, Invertebrates  
 REGISTRY NUMBER: 14265-44-2 (phosphate)  
 67-07-2 (creatine phosphate)  
 7200-25-1 (arginine)

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ACCESSION NUMBER: 1955:29610 BIOSIS Full-text  
 DOCUMENT NUMBER: PREV19552900029674; BA29:29674  
 TITLE: Chemical factors controlling the growth of the decotylized pea seedling.  
 AUTHOR(S): FRIES, NILS  
 SOURCE: SYMBOLAE BOT UPSALIENSIS, (1954) Vol. 13, No. 1, pp. 1-83.  
 DOCUMENT TYPE: Article  
 FILE SEGMENT: BA  
 LANGUAGE: Unavailable  
 ENTRY DATE: Entered STN: May 2007  
 Last Updated on STN: May 2007

ABSTRACT: When pea seedlings deprived of cotyledons were cultivated in test tubes with a synthetic medium under aseptic conditions in darkness, growth rate of root decreased considerably in one week, shoot remained almost constant for two or three weeks; root growth continued when medium was supplemented with

organic chemicals yeast nucleic acid, hydrolyzed casein, or yeast extract. Adenine, free or linked to ribose in adenosine and adenylic acid, produced same effect as nucleic acid; other nucleic acid constituents were inactive; guanine and uracil displayed characteristic inhibitory effect on lateral root dev. Only glycine, arginine and probably glutamic acid, of all amino acids composing casein hydrolysate, supported seedling root growth. All amino acids were inhibitory in high concentration, except glutamic acid. Hydroxyproline depressed growth rate of shoot and root even at low 0.03 mM concentration. Arginine could be exchanged for ornithine or citrulline. Glycine was active also in peptide linkage, but not as a constituent of \*\*\*glycocyamine.\*\*\* Among other organic substances tested, urea, creatine, creatinine, indoleacetic acid, succinic and citric acids, showed no growth-promoting effect. First effect produced by active substances was promotion of root growth; arginine, glycine, adenine and hypoxanthine also promoted increase in dry weight of plant. Development of lateral roots stimulated by hypoxanthine and ornithine. Combination tests showed neither ornithine nor citrulline could further increase maximal effect of arginine on root growth. Glycine and adenine increased arginine effect. Combination tests with glycine and adenine point to possibility these are metabolically related. The strong inhibition in growth rate and development of lateral roots by hydroxyproline was completely removed by casein hydrolysate, most active component proline: even with proline/hydroxyproline molar ratio of 10, slight inhibition still remained. Two dipeptides of hydroxyproline and glycine showed no inhibitory activity. Significance of arginine as key metabolite manifested by arginine analogue canavanine, a growth inhibitor even stronger than hydroxyproline, the effect of which was counteracted by arginine and presumed precursors: ornithine and citrulline. Azaguanine depressed both growth rate and nucleic acid content in decotylized seedlings; by adding 30 times larger quantities of adenine or hypoxanthine the growth inhibition was partly removed and nucleic acid content remained normal. ABSTRACT AUTHORS: W. W. Brentzel.

CONCEPT CODE: Plant physiology - Growth substances 51514

INDEX TERMS: Major Concepts

Botany

INDEX TERMS: Chemicals & Biochemicals

creatine; glycocyamine; ribose;  
proline/hydroxyproline; adenine; guanine; ornithine;  
hydroxyproline; glutamic acid; indoleacetic acid;  
adenosine; arginine; uracil; amino acids; glycine;  
proline; citrulline; creatinine; urea; Azaguanine;  
dipeptides; hypoxanthine; nucleic acid; casein

ORGANISM: Classifier

Fungi 15000

Super Taxa

Plantae

Organism Name

yeast (common)

Taxa Notes

Fungi, Microorganisms, Nonvascular Plants, Plants

ORGANISM: Classifier

Leguminosae 26260

Super Taxa

Dicotyledones; Angiospermae; Spermatophyta; Plantae

Organism Name

pea (common)

Taxa Notes

Angiosperms, Dicots, Plants, Spermatophytes, Vascular  
Plants

ORGANISM: Classifier

Plantae 11000

Super Taxa  
 Plantae  
 Organism Name  
 plant (common)  
 Taxa Notes  
 Plants

REGISTRY NUMBER: 57-00-1 (creatine)  
 93781-19-2 (ribose)  
 73-24-5 (adenine)  
 73-40-5 (guanine)  
 616-07-9 (ornithine)  
 6912-67-0 (hydroxyproline)  
 617-65-2 (glutamic acid)  
 32536-43-9 (indoleacetic acid)  
 58-61-7 (adenosine)  
 7200-25-1 (arginine)  
 66-22-8 (uracil)  
 56-40-6 (glycine)  
 609-36-9 (proline)  
 372-75-8 (citrulline)  
 60-27-5 (creatinine)  
 57-13-6 (urea)  
 68-94-0 (hypoxanthine)

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ACCESSION NUMBER: 1949:18766 BIOSIS Full-text  
 DOCUMENT NUMBER: PREV19492300018946; BA23:18946  
 TITLE: The degradation of glycoxyamine by *P. ovalis*.  
 Bacterial glycoxyaminase and argininedihydrolase.  
 Original Title: Sur la degradation de la  
 glycoxyamine par *Pseudomonas ovalis*. Glycoxyaminase  
 et argininedihydrolase bacteriennes.

AUTHOR(S): ROCHE, JEAN; GIRARD, HENRI; LA-COMBE, GABRIELLE; MOURGUE,  
 MORCEL

CORPORATE SOURCE: Inst. Pasteur, Paris  
 SOURCE: BIOCHIM ET BIOPHYS ACTA, (1948) Vol. 2, No. 5, pp. 414-422.  
 DOCUMENT TYPE: Article  
 FILE SEGMENT: BA  
 LANGUAGE: Unavailable  
 ENTRY DATE: Entered STN: May 2007  
 Last Updated on STN: May 2007

ABSTRACT: *P. ovalis* decomposing glycoxyamine (I) at an optimal pH of  
 8-8.5 has been isolated from garden earth. *P. ovalis* hydrolyzes I,  
 and, much more slowly, creatine to give urea. It decomposes arginine and  
 arginic acid to NH<sub>3</sub>. The 1st reaction is brought about by a specific  
 glycoxyaminase (II) while the 2d is catalyzed by argininedihydrolase (III). II  
 is inactive on arginase substrates, and is activated by Mn<sup>++</sup> and Fe<sup>++</sup>, es-  
 pecially in the presence of cysteine and is inhibited by various agents capable  
 of forming metal complexes. HI decomposes agmatine which is resistant to liver  
 arginase. ABSTRACT AUTHORS: T. E. King

CONCEPT CODE: Bacteriology, general and systematic 30000  
 INDEX TERMS: Major Concepts  
 Bacteriology

INDEX TERMS: Parts, Structures, & Systems of Organisms  
 liver: digestive system

INDEX TERMS: Chemicals & Biochemicals  
 glycoxyamine; arginase [EC 3.5.3.1];  
 glycoxyaminase [EC 3.5.3.2]; arginine;  
 argininedihydrolase; urea; metal; creatine; agmatine;



cysteine  
 ORGANISM: Classifier  
 Bacteria 05000  
 Super Taxa  
 Microorganisms  
 Organism Name  
 bacteria (common)  
 Taxa Notes  
 Bacteria, Eubacteria, Microorganisms  
 REGISTRY NUMBER: 9000-96-8 (arginase)  
 9000-96-8 (EC 3.5.3.1)  
 7200-25-1 (arginine)  
 57-13-6 (urea)  
 57-00-1 (creatine)  
 306-60-5 (agmatine)  
 3374-22-9 (cysteine)

L37 ANSWER 22 OF 25 BIOSIS COPYRIGHT (c) 2009 The Thomson Corporation on STN

ACCESSION NUMBER: 1949:2906 BIOSIS Full-text  
 DOCUMENT NUMBER: PREV19492300002928; BA23:2928  
 TITLE: The specificity of liver arginase.  
 Original Title: Sur la specificite de l'arginase hepatiche.  
 AUTHOR(S): ROCHE, JEAN; MOURGUE, MARCEL  
 CORPORATE SOURCE: U. Marseille  
 SOURCE: BULL SOC CHIM BIOL, (1947) Vol. 29, No. 10/12, pp. 889-895.  
 DOCUMENT TYPE: Article  
 FILE SEGMENT: BA  
 LANGUAGE: Unavailable  
 ENTRY DATE: Entered STN: May 2007  
 Last Updated on STN: May 2007

ABSTRACT: A considerable number of acids containing the guanidine group and also hydroxyl, thio and amino groups (for instance alpha-guanidine-beta-hydroxypropionic acid, p-hydroxyphenyl-alpha-guanidine propionic acid) were subjected to the action of dog liver arginase. None of them was hydrolysed, except arginic acid and the guanidine acetamide of glycine. Several guanidine alcohols and guanidine amines were also not \*\*\*hydrolysed.\*\*\* Agmatine (aminobutylguanidine) was not attacked by the enzyme, but this result was at variance with the findings of other workers. This also applies to the result obtained for guanidineacetic acid, which was not hydrolysed by arginase. The specificity of arginase did not seem to be conditioned only by the presence in the molecule of the substrate of the guanidine group and the carboxylic group (the latter being associated with an amino or hydroxylic group in alpha-position). These groups must be located a certain distance apart, and this "geometrical" condition appeared to be more important than the nature of the chain which carried the groups. The enzymatic activity was followed by determining the urea released during the reaction by the xanthidrol method. ABSTRACT AUTHORS: Gunnar Steensholt

CONCEPT CODE: Enzymes - General and comparative studies: coenzymes  
 10802  
 INDEX TERMS: Major Concepts  
 Enzymology (Biochemistry and Molecular Biophysics)  
 INDEX TERMS: Parts, Structures, & Systems of Organisms  
 liver: digestive system  
 INDEX TERMS: Chemicals & Biochemicals  
 alcohols; guanidineacetic acid; guanidine;  
 alpha-guanidine-beta-hydroxypropionic acid; arginase [EC  
 3.5.3.1]; guanidine acetamide; glycine; amines;  
 p-hydroxyphenyl-alpha-guanidine propionic acid; thio;

ORGANISM: propionic acid; aminobutylguanidine; urea; xanthidrol  
 Classifier  
 Canidae 85765  
 Super Taxa  
 Carnivora; Mammalia; Vertebrata; Chordata; Animalia  
 Organism Name  
 dog (common)  
 Taxa Notes  
 Animals, Carnivores, Chordates, Mammals, Nonhuman  
 Vertebrates, Nonhuman Mammals, Vertebrates  
 REGISTRY NUMBER: 113-00-8 (guanidine)  
 9000-96-8 (arginase)  
 9000-96-8 (EC 3.5.3.1)  
 56-40-6 (glycine)  
 79-09-4 (propionic acid)  
 57-13-6 (urea)  
 90-46-0 (xanthidrol)

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ACCESSION NUMBER: 1947:24200 BIOSIS Full-text  
 DOCUMENT NUMBER: PREV19472100024379; BA21:24379  
 TITLE: On the excretion of choline in urine.  
 AUTHOR(S): Borglin, Nils-Erik  
 CORPORATE SOURCE: U. Lund  
 SOURCE: ADA PHARMACOL ET TOXICOL, (1947) Vol. 3, No. Suppl. 1, pp. 1-123.  
 DOCUMENT TYPE: Article  
 FILE SEGMENT: BA  
 LANGUAGE: Unavailable  
 ENTRY DATE: Entered STN: May 2007  
 Last Updated on STN: May 2007

ABSTRACT: The urinary excretion of choline by rats on various diets was detd. by acetylation and bio-assay on strips of rabbit intestine; the test is very specific; 0.25 a choline can easily be detd. For detn. in tissues these were extracted with alc., total choline being obtained after hydrolysis. On a diet deficient in choline, excretion falls rapidly to very low values before any other symptoms of deficiency appear. With excess choline intake excretion parallels the amt. given; about 0.25% of the choline in the diet is excreted as free choline. On still larger intakes this % is increased. When lipotropic factors (proteins, methionine and betaine) are added to the diet, the % of choline excreted is increased 20-50%. Dietary addition of ethanolamine and especially of diethylethanolamine, may increase choline excretion 10-fold. Factors increasing the requirement of choline (fat, thiamine, nicotinic acid, glycocholine) reduce choline excretion; compounds containing non-labile methyl groups, e.g., creatine, have no effect. The choline content of more than 80 samples of common Swedish foods was detd.; more than 1 mg. cho-line/kg. was found in egg-yolk, liver, brain, yeast, kidney. 0.5-1 mg. in meat, fish, whole wheat grains, barley, and less than 0.1 mg./kg. in margarine, winter milk, eggwhite, potatoes; about 2% of the total choline is free. An avg. Swedish diet is estimated to contain about 450 mg. of choline/day, 50% in eggs, 20% in cereal products, 10% in meat and fish and 7% in vegetables. Normal adults excrete 2-4 mg./day, 0.5-1% of that present in the food. In 2-9 mo. old infants the relations are the same. During a 24-hr. fast choline excretion is 50% of the avg., the day after, 80%. In hospitalized patients on ulcer diets, the excretion of choline follows the dietary choline rather closely. When choline is added, 0.1-0.3% of it is excreted. ABSTRACT AUTHORS: Erik Jacobsen  
 CONCEPT CODE: Nutrition - General studies, nutritional status and methods 13202

INDEX TERMS: Major Concepts  
Nutrition

INDEX TERMS: Parts, Structures, & Systems of Organisms  
egg-yolk: embryonic structure; tissues; kidney:  
excretory system; liver: digestive system; brain:  
nervous system; intestine: digestive system; urine:  
excretory system

INDEX TERMS: Chemicals & Biochemicals  
choline/day; choline; thiamine; diethylethanolamine;  
proteins; nicotinic acid; glycocytamine;  
ethanolamine; betaine; creatine; methionine

ORGANISM: Classifier  
Angiospermae 25200  
Super Taxa  
Spermatophyta; Plantae  
Organism Name  
vegetables (common)  
cereal (common)  
Taxa Notes  
Angiosperms, Plants, Spermatophytes, Vascular Plants

ORGANISM: Classifier  
Fungi 15000  
Super Taxa  
Plantae  
Organism Name  
yeast (common)  
Taxa Notes  
Fungi, Microorganisms, Nonvascular Plants, Plants

ORGANISM: Classifier  
Gramineae 25305  
Super Taxa  
Monocotyledones; Angiospermae; Spermatophyta; Plantae  
Organism Name  
barley (common)  
wheat (common)  
Taxa Notes  
Angiosperms, Monocots, Plants, Spermatophytes, Vascular  
Plants

ORGANISM: Classifier  
Leporidae 86040  
Super Taxa  
Lagomorpha; Mammalia; Vertebrata; Chordata; Animalia  
Organism Name  
rabbit (common)  
Taxa Notes  
Animals, Chordates, Lagomorphs, Mammals, Nonhuman  
Vertebrates, Nonhuman Mammals, Vertebrates

ORGANISM: Classifier  
Muridae 86375  
Super Taxa  
Rodentia; Mammalia; Vertebrata; Chordata; Animalia  
Organism Name  
rats (common)  
Taxa Notes  
Animals, Chordates, Mammals, Nonhuman Vertebrates,  
Nonhuman Mammals, Rodents, Vertebrates

ORGANISM: Classifier  
Pisces 85200  
Super Taxa  
Vertebrata; Chordata; Animalia

Organism Name  
     fish (common)  
 Taxa Notes  
     Animals, Chordates, Fish, Nonhuman Vertebrates,  
     Vertebrates  
 ORGANISM: Classifier  
     Solanaceae 26775  
 Super Taxa  
     Dicotyledones; Angiospermae; Spermatophyta; Plantae  
 Organism Name  
     potatoes (common)  
 Taxa Notes  
     Angiosperms, Dicots, Plants, Spermatophytes, Vascular  
     Plants  
 REGISTRY NUMBER: 62-49-7 (choline)  
     59-43-8 (thiamine)  
     59-67-6 (nicotinic acid)  
     141-43-5 (ethanolamine)  
     107-43-7 (betaine)  
     57-00-1 (creatine)  
     63-68-3 (methionine)

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ACCESSION NUMBER: 1938:14972 BIOSIS Full-text  
 DOCUMENT NUMBER: PREV19381200015832; BA12:15832  
 TITLE: Activation of enzymes. V. The specificity of arginase and  
     the non-enzymatic hydrolysis of guanidino  
     compounds. Activating metal ions and liver arginase.  
 AUTHOR(S): HELLERMAN, LESLIE; STOCK, C. CHESTER  
 SOURCE: JOUR BIOL CHEM, (1938) Vol. 125, No. 2, pp. 771-793.  
 DOCUMENT TYPE: Article  
 FILE SEGMENT: BA  
 LANGUAGE: Unavailable  
 ENTRY DATE: Entered STN: May 2007  
     Last Updated on STN: May 2007

ABSTRACT: Exploratory activity-pH curves for certain preparations of liver  
 arginase revealed in greater detail some of the aspects of the enzyme action in  
 the presence of heavy metal activator ions. The character and quantity of such  
 ions present in crude enzyme preps. might account in part for divergences in  
 the pH-activity curves of certain enzymes as developed by different workers.  
 The data taken with other observations suggested the participation of the  
 [alpha]-amino group of d-arginine in the orientation of enzyme to substrate  
 through metallo complex formation. An investigation of the specificity of  
 arginase (with [delta]-guanidinovaleric and argininic acids), particularly in  
 relation to the role of the [alpha]-amino group of d-arginine raised the  
 question to what extent enzyme specificity might be a matter of degree rather  
 than an absolute property. A comparison of the characteristics of the  
 enzymatic hydrolysis of d-arginine and of the controlled alkaline  
 (non-enzymatic) hydrolysis of d-arginine, [delta]-guanidinovaleric  
 acid, argininic acid, glycocyamine, and guanidine disclosed important  
 distinctions in the differently catalyzed processes. The unique qualities in  
 the action of arginase suggested a correlation of the enzyme action with the  
 alteration of resonance in the guanidinium ion of d-arginine. ABSTRACT

AUTHORS: L. Hellerman  
 CONCEPT CODE: Physiology - General 12002  
 INDEX TERMS: Major Concepts  
     Physiology  
 INDEX TERMS: Parts, Structures, & Systems of Organisms  
     liver: digestive system

INDEX TERMS: Chemicals & Biochemicals  
glycocyanine; extent enzyme; heavy metal;  
guanidinium; [delta]-guanidinovaleric acid; metal;  
guanidine; arginase [EC 3.5.3.1]

REGISTRY NUMBER: 25215-10-5 (guanidinium)  
113-00-8 (guanidine)  
9000-96-8 (arginase)  
9000-96-8 (EC 3.5.3.1)

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ACCESSION NUMBER: 1938:13574 BIOSIS Full-text  
DOCUMENT NUMBER: PREV19381200014410; BA12:14410  
TITLE: Zur Spezifität der Arginase.  
AUTHOR(S): FELIX, K.; SCHNEIDER, H.  
SOURCE: HOPPE SEYLER S ZEITSCHR PHYSIOL CHEM, (1938) Vol. 255, No.  
1/3, pp. 132-144.  
DOCUMENT TYPE: Article  
FILE SEGMENT: BA  
LANGUAGE: Unavailable  
ENTRY DATE: Entered STN: May 2007  
Last Updated on STN: May 2007

ABSTRACT: It was necessary for the substrate to have free guanidine and carboxyl groups. Every change in these interfered with arginase action. Enzyme preps. were obtained from livers of hog, ram, cattle, rabbit, and dog. An acid radical, peptide group, or methyl or hydroxyl groups could be substituted in the [alpha] amino group of the substrate. The length of the carbon chain varied. For all the derivatives of arginine tested, the optimum pH for arginase action was 7, with a range, of 7-8. Karashima's finding that liver extract hydrolyzed guanidine-acetic acid was confirmed. Arginine and guanidine-acetic acid were probably hydrolyzed by different enzymes. ABSTRACT AUTHORS: W. N. Berg

CONCEPT CODE: Physiology - General 12002  
INDEX TERMS: Major Concepts  
Physiology  
INDEX TERMS: Parts, Structures, & Systems of Organisms  
liver: digestive system  
INDEX TERMS: Chemicals & Biochemicals  
arginine; carbon; guanidine-acetic  
acid; different enzymes; guanidine; arginase [EC  
3.5.3.1]

ORGANISM: Classifier  
Bovidae 85715  
Super Taxa  
Artiodactyla; Mammalia; Vertebrata; Chordata; Animalia  
Organism Name  
ram (common)  
cattle (common)  
Taxa Notes  
Animals, Artiodactyls, Chordates, Mammals, Nonhuman  
Vertebrates, Nonhuman Mammals, Vertebrates

ORGANISM: Classifier  
Canidae 85765  
Super Taxa  
Carnivora; Mammalia; Vertebrata; Chordata; Animalia  
Organism Name  
dog (common)  
Taxa Notes  
Animals, Carnivores, Chordates, Mammals, Nonhuman

ORGANISM: Vertebrates, Nonhuman Mammals, Vertebrates  
Classifier  
Leporidae 86040  
Super Taxa  
Lagomorpha; Mammalia; Vertebrata; Chordata; Animalia  
Organism Name  
rabbit (common)  
Taxa Notes  
Animals, Chordates, Lagomorphs, Mammals, Nonhuman  
Vertebrates, Nonhuman Mammals, Vertebrates

ORGANISM: Classifier  
Suidae 85740  
Super Taxa  
Artiodactyla; Mammalia; Vertebrata; Chordata; Animalia  
Organism Name  
hog (common)  
Taxa Notes  
Animals, Artiodactyls, Chordates, Mammals, Nonhuman  
Vertebrates, Nonhuman Mammals, Vertebrates

REGISTRY NUMBER: 7200-25-1 (arginine)  
7440-44-0 (carbon)  
113-00-8 (guanidine)  
9000-96-8 (arginase)  
9000-96-8 (EC 3.5.3.1)

FILE 'HOME' ENTERED AT 15:33:27 ON 15 JUL 2009

## SEARCH HISTORY

=&gt; d his nofile

(FILE 'HOME' ENTERED AT 15:02:42 ON 15 JUL 2009)

FILE 'REGISTRY' ENTERED AT 15:02:57 ON 15 JUL 2009

E GLYCOCYAMINE/CN

L1 1 SEA SPE=ON ABB=ON GLYCOCYAMINE/CN

FILE 'REGISTRY' ENTERED AT 15:03:57 ON 15 JUL 2009

D IDE

L2 32 SEA SPE=ON ABB=ON 352-97-6/CRN

FILE 'CAPLUS' ENTERED AT 15:05:33 ON 15 JUL 2009

L3 936 SEA SPE=ON ABB=ON L1

L4 41 SEA SPE=ON ABB=ON L2

L5 967 SEA SPE=ON ABB=ON (L3 OR L4)

FILE 'REGISTRY' ENTERED AT 15:05:44 ON 15 JUL 2009

L6 1 SEA SPE=ON ABB=ON GLYCINE/CN

FILE 'CAPLUS' ENTERED AT 15:05:53 ON 15 JUL 2009

L7 68444 SEA SPE=ON ABB=ON L6

L8 82 SEA SPE=ON ABB=ON L5 (L) RACT/RL

L9 4058 SEA SPE=ON ABB=ON L6/P

L10 0 SEA SPE=ON ABB=ON L8 AND L9

L11 160 SEA SPE=ON ABB=ON L5 AND L7

L12 12 SEA SPE=ON ABB=ON L8 AND L7

D SCAN

L13 14 SEA SPE=ON ABB=ON L9 AND L5

D SCAN TI HITIND

E HYDROLY/CT

E E15+ALL

L14 292352 SEA SPE=ON ABB=ON HYDROLY?/OBI

L15 21 SEA SPE=ON ABB=ON L5 AND L14

D SCAN TI HITIND

L16 100 SEA SPE=ON ABB=ON L1/P OR L2/P

L17 18 SEA SPE=ON ABB=ON L5 AND L14 NOT L16

D SCA TI HITIND

L18 35 SEA SPE=ON ABB=ON L5 (L) (INHIBITION/OBI OR CYLINDROSPERMOPSIN/OBI OR ACYLATION/OBI OR DAVIDIGENIN/OBI OR CHLORINATION/OBI)

L19 12 SEA SPE=ON ABB=ON L17 NOT L18

FILE 'BIOSIS' ENTERED AT 15:21:13 ON 15 JUL 2009

L20 200 SEA SPE=ON ABB=ON L1

L21 449 SEA SPE=ON ABB=ON BETA!YAMINE OR GLYCOCYAMINE OR GUANIDIN!ACE  
TIC OR ((GUANIDIN# OR GUANIDYL) (W) ACETIC) OR GUANIDYLACETIC  
OR AMIDINOGLYCINE OR NSC(W) (1901 OR 227847 OR 26360)

L22 85972 SEA SPE=ON ABB=ON GLYCINE

L23 177055 SEA SPE=ON ABB=ON HYDROLY?

L24 17 SEA SPE=ON ABB=ON (L20 OR L21) AND L23

L25 7 SEA SPE=ON ABB=ON (L20 OR L21) AND L23 AND L22

D SCAN

L26 48 SEA SPE=ON ABB=ON (?SYNTHESI? OR FORM? OR PRODUC?) (2A) (L20  
OR L21)

L27 14 SEA SPE=ON ABB=ON L24 NOT L26

D SCAN

FILE 'STNGUIDE' ENTERED AT 15:28:03 ON 15 JUL 2009

FILE 'PASCAL, BIOTECHNO, ESBIODASE, LIFESCI' ENTERED AT 15:29:22 ON 15  
JUL 2009

L28 220 SEA SPE=ON ABB=ON BETA!YAMINE OR GLYCOCYAMINE OR GUANIDIN!ACE  
TIC OR ((GUANIDIN# OR GUANIDYL) (W) ACETIC) OR GUANIDYLACETIC  
OR AMIDINOGLYCINE OR NSC(W) (1901 OR 227847 OR 26360)  
L29 107271 SEA SPE=ON ABB=ON GLYCINE  
L30 257737 SEA SPE=ON ABB=ON HYDROLY?  
L31 482505 SEA SPE=ON ABB=ON DEGRAD?  
L32 0 SEA SPE=ON ABB=ON L28(3A) (L30 OR L31)  
L33 0 SEA SPE=ON ABB=ON L28(5A) (L30 OR L31)  
L34 6 SEA SPE=ON ABB=ON L28 AND (L30 OR L31)  
D SCAN  
L35 38 SEA SPE=ON ABB=ON L28 AND L29  
L36 1 SEA SPE=ON ABB=ON L28 AND L29 AND (L30 OR L31)  
D SCAN  
D KWIC  
D BIB

FILE 'STNGUIDE' ENTERED AT 15:31:39 ON 15 JUL 2009

FILE 'CAPLUS' ENTERED AT 15:32:51 ON 15 JUL 2009  
D QUE L19

FILE 'BIOSIS' ENTERED AT 15:32:51 ON 15 JUL 2009  
D QUE L27

FILE 'PASCAL, BIOTECHNO, ESBIODASE, LIFESCI' ENTERED AT 15:32:52 ON 15  
JUL 2009  
D QUE L36

FILE 'BIOTECHNO, CAPLUS, BIOSIS' ENTERED AT 15:32:53 ON 15 JUL 2009  
L37 25 DUP REM L36 L19 L27 (2 DUPLICATES REMOVED)  
ANSWER '1' FROM FILE BIOTECHNO  
ANSWERS '2-13' FROM FILE CAPLUS  
ANSWERS '14-25' FROM FILE BIOSIS  
D IALL 1  
D IBIB ABS HITIND 2-13  
D IALL 14-25

FILE 'HOME' ENTERED AT 15:33:27 ON 15 JUL 2009

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